Claims

1. Piston machine comprising a rotatably mounted cylindrical drum (2), disposed in which is a plurality of cylindrical bores (3, 4), which are distributed over the circumference and in which displaceable pistons (5, 6) are disposed, wherein the cylindrical bores (3, 4) at one side have cylindrical openings (7, 8, 35.1, 35.2, … 35.9), which in accordance with the angle of rotation of the cylindrical drum (2) are temporarily in communication in each case with one of two kidney-shaped control ports (9, 10), which are connected in each case to a working line (27, 28), wherein between the kidney-shaped control ports (9, 10) in each case a switchover region (30, 31) is formed and wherein a first end (32) of a pressure compensation line (33) opens out at least into one switchover region (30, 31), **characterized in** that a second end (34) of the pressure compensation line (33) opens into the outlet-side working line (27), wherein the length (L) of the outlet-side working line (27) between the outlet-side kidney-shaped control port (9) and the second end (34) of the pressure compensation line (33) is so dimensioned that there is a defined phase relationship between a pressure wave, which is caused by a reciprocating motion of the pistons (5, 6) and advances in the outlet-side working line (27), at the point of the second end (34) of the pressure compensation line (33) and the angle of rotation of the cylindrical drum (2).

2. Piston machine according to claim 1, **characterized in**

that the piston machine is a hydraulic pump and that the length (L) between the outlet-side kidney-shaped control port (9) and the second end (34) of the pressure compensation line is approximately ¼ λ, wherein λ signifies the wavelength of the pressure wave, optionally plus an integral multiple of the wavelength (λ) of the pressure wave.

3. Piston machine according to claim 1,
characterized in
that the piston machine is a hydraulic motor and that the length (L) between the outlet-side kidney-shaped control port (9) and the second end (34) of the pressure compensation line is approximately ¾ λ, wherein λ signifies the wavelength of the pressure wave, optionally plus an integral multiple of the wavelength (λ) of the pressure wave.

4. Piston machine according to claim 1,
characterized in
that the piston machine operates as a hydraulic pump and
that the length (L) of the outlet-side working line (27) between the outlet-side kidney-shaped control port (9) and the second end (34) of the pressure compensation line (33) is a fraction of the wavelength (λ), wherein the fraction corresponds approximately to the quotient of the angle (γ) between the first end (32) of the pressure compensation line (33) and the cylindrical opening (35.5) of the next cylinder to come into overlap with the first end (32) of the pressure compensation line (33) at the instant that a pressure

maximum arises in the outlet-side working line (27) and the intermediate angle (δ) between two adjacent cylindrical bores, optionally plus an integral multiple of the wavelength (λ) of the pressure wave.

5. Piston machine according to claim 1
characterized in
that the piston machine operates as a hydraulic motor and
that the length (L) of the outlet-side working line (27) between the outlet-side kidney-shaped control port (9) and the second end (34) of the pressure compensation line (33) is a fraction of the wavelength (λ), wherein the fraction corresponds approximately to the quotient of the angle (φ) between the first end (32) of the pressure compensation line (33) and the cylindrical opening (35.2) of the next cylinder to come into overlap with the first end (32) of the pressure compensation line (33) at the instant when a pressure minimum occurs and the intermediate angle (δ) between two adjacent cylindrical bores, optionally plus an integral multiple of the wavelength (λ) of the pressure wave.

6. Piston machine according to one of claims 1 to 5,
characterized in
that the length of the pressure compensation line (33) is an integral multiple of the wavelength (λ) of the pressure wave.

7. Piston machine according to one of claims 1 to 5,
characterized in

that the phase displacement caused by the length of the pressure compensation line (33) at the first end (32) is taken into account by means of a correction of the length (L) between the outlet-side kidney-shaped control port (9) and the second end (34) of the pressure compensation line (33).

8. Piston machine according to one of claims 1 to 7, **characterized in** that a pressure accumulator element (38) is connected to the pressure compensation line (33).

9. Piston machine according to one of claims 1 to 8, **characterized in** that a throttling point is formed at the second end (34) of the pressure compensation line (33).